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EXAMINER

VANOY, TIMOTHY C

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 07/21/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10-048,167

Applicant(s)

LEBAS et al.

Examiner

VANOY

Group Art Unit

1754

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

☒ Responsive to communication(s) filed on

THE AMENDMENT DATE - STAMPED JAN. 29, 2002 (PAPER #5)

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

☒ Claim(s) 1-19

is/are pending in the application.

Of the above claim(s) 14-19

is/are withdrawn from consideration.

☒ Claim(s) 10, 11 AND 12

is/are allowed.

☒ Claim(s) 1-9 AND 13

is/are rejected.

☒ Claim(s) 1

is/are objected to.

☒ Claim(s) 1-19

are subject to restriction or election requirement

## Application Papers

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☒ The drawing(s) filed on APR. 18, 2002 is/are objected to by the Examiner

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☒ All ☐ Some\* ☐ None of the:

☒ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☒ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other \_\_\_\_\_

Office Action Summary

**DETAILED ACTION**

***Lack of Unity***

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-13, drawn to a process for regenerating an adsorbent.

Group II, claim(s) 14-19 drawn to a device for regenerating an adsorbent.

The inventions listed as Groups I and II above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The "Y" references (i. e. FR 2,730,424 A; FR 2,587,236 A and U. S. Pat. 6,030,597 A) set forth in the Search Report in the parent application PCT/FR01/01700 are evidence that the "special technical" feature common the claims of Groups I and II above does not define an unobvious distinction over the prior art, and, therefore, the claims of groups I and II lack unity of invention: please see section 1893.03(d) in the MPEP (Feb. 2003) for details.

During a telephone conversation with Mr. Alan Schiavelli, applicants' attorney, on July <sup>10</sup>~~8~~, 2003, a provisional election was made with traverse to prosecute the invention of

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the method, claims 1-13 (Group I). Affirmation of this election must be made by the applicants in their reply to this Office action. Claims 14-19 (Group II) are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

The Applicants are reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The references indicated in the applicants' search report for their patent application PCT/FR01/01700 have been made of record (i. e. FR 2,730,424 A; FR 2,587,236 A; DE 29 44 754 A; U. S. Pat. 6,030,597; U. S. Pat. 4,101,641; U. S. Pat. 5,229,091 and U. S. Pat. 3,764,665).

### ***Drawings***

- a) Fig. 1 is objected to under 37 CFR 1.83(a) because it fails to show the "burner" 14 set forth on pg. 8 ln. 23 in the applicants' specification as described in the specification. Rather, figure 1 shows a pump as feature 14. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).
- b) Fig. 1 is objected to for failing to comply with 37 CFR 1.84(p)(5) because it does not include reference sign(s) for the arrows leading into lines 3 and 4 or for the line leading into the pump 14.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

- a) The Applicants are reminded of the proper content of an Abstract of the Disclosure.

In chemical patent abstracts for compounds or compositions, the general nature of the compound or composition should be given as well as its use, *e.g.*, "The compounds are of the class of alkyl benzene sulfonyl ureas, useful as oral anti-diabetics." Exemplification of a species could be illustrative of members of the class. For processes, the type reaction, reagents and process conditions should be stated, generally illustrated by a single example unless variations are necessary.

*In this application, it would be helpful if the abstract provided particular examples of the "used absorbent"; what the "reducing atmosphere" is, and what the "products of said partial combustion" are.*

Complete revision of the content of the abstract is required on a separate sheet.

***Claim Objections***

- a) In claim 1 line 1, "intended" should be deleted.
- b) In claim 1 line 2, "from the desulfurization" should be inserted between "or" and "of".

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as their invention.

- a) Claim 2 does not particularly point out and distinctly set forth *what* the "additive regeneration gas" is added to or *where* the "additive regeneration gas" is added.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The person having "ordinary skill in the art" has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Pat. 5,730,781 in view of Canadian Pat. 1,136,384.

Fig. 1 in U. S. Pat. 5,730,781 describes a process for regenerating sorbents used for the removal of sulfur oxides out of combustion fumes or process gases (please see col. 2 lns. 58-60), comprising the steps:

Discharging the sulfur compound-loaded sorbent (2) from a dust separator (1), where it is pneumatically conveyed with air or fumes into a storage hopper (4) (please see col. 3 ln. 59 to col. 4 ln. 3 in U. S. Pat. 5,730,781), and

Discharging the sulfur compound-loaded sorbent (5) from the storage hopper (4), where it is pneumatically conveyed with regeneration gas (18 and 19) through a gas to gas heat exchanger (7) (where it is heated); then through a thermal generator (8) (where it is heated up even more), and finally through a filter/reactor (13), where it is regenerated (please see col. 4 lns. 4-36 in U. S. Pat. 5,730,781), as set forth in at least applicants' claims 1 and 13.

The regeneration gas may be a hydrocarbon gas having a carbon number less than 10, such as hydrogen (?), methane, ethane, etc. (please see col. 2 lns. 40-44 in U. S. Pat. 5,730,781).

Note that fig. 1 in U. S. Pat. 5,730,781 illustrates the use of two different streams (20 and 16) of regeneration gas entering the filter/reactor (13), in a manner rendering obvious the limitations of applicants' claim 2.

The difference between the applicants' claims and U. S. Pat. 5,730,781 is that the applicants' claim 1 sets forth that the regeneration gas is a product of partial combustion (conducted upstream of the regeneration-filter stage): which claim 3 identifies as comprising hydrogen sulfide or hydrocarbon, and additionally applicants' claims 8 and 9 identify the catalyst being present during the regeneration as either copper oxide and/or cerium oxide.



The English abstract of CA 1,136,384 describes a process for the regeneration of sulfur oxides gas-cleaning sorbents, which may be the copper oxide or cerium oxide of applicants' claims 8 and 9, by passing a gas comprising 1 to 70 volume percent hydrogen sulfide and the balance of the gas being helium, neon, argon, carbon dioxide, nitrogen and/or steam through the sorbent at a temperature of 300 to 700 °C to regenerate and render it suitable to desulfurize gas. Pg. 7 Ins. 3-6 in CA 1,136,384 explains that a mole of the hydrogen sulfide is able to reduce three times as much sulfate as a mole of hydrogen, a major advantage of this method of regeneration over the prior art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made *to modify* the process described in U. S. Pat. 5,730,781 *by substituting* the hydrogen sulfide regenerating gas mentioned in the English abstract of CA 1,136,384 *in lieu of* the hydrogen, etc. regenerating gas mentioned in col. 2 Ins. 40-44 in U. S. Pat. 5,730,781 *into the process* described in U. S. Pat. 5,730,781, in the manner required by at least applicants' claims 1 and 3 (and, especially when the process of U. S. Pat. 5,730,781 uses a copper oxide and/or cerium oxide catalyst of applicants' claims 8 and 9), *because* of the taught advantage of the hydrogen sulfide to reduce three times as much sulfate (i. e. spent sorbent) than the hydrogen mentioned in col. 2 Ins. 40-44 in U. S. Pat. 5,730,781, as taught on pg. 7 Ins. 3-6 in CA 1,136,384. Further, the limitation in applicants' claim 1 setting forth that the regeneration gas results from an upstream partial combustion process is noted, but such partial combustion of a hydrogen sulfide-containing gas is submitted to be an obvious means

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for obtaining the regeneration gas comprising (a) hydrogen sulfide and (b) nitrogen and/or carbon dioxide and/or steam, etc. set forth in the English abstract of CA 1,136,384 A.

Note that pg. 7 Ins. 7-18 in CA 1,136,384 discloses that the off-gas from the regeneration contains either sulfur dioxide or both sulfur dioxide and hydrogen sulfide, which may be sent to a separate Claus plant. Thus, the process resulting from the above modification of U. S. Pat. 5,730,781 in view of CA 1,136,384 is expected to cool the off-gas from the regenerator in the gas to gas heat exchanger (22): please also see col. 5 Ins. 6-8 in U. S. Pat. 5,730,781 (as set forth in applicants' claim 4), and then passed into the Claus plant (as set forth in applicants' claim 5).

Note that col. 5 Ins. 34-40 in U. S. Pat. 5,730,781 discloses that a mixture of sorbent and carrier gas is discharged and col. 5 Ins. 25-29 in U. S. Pat. 5,730,781 discloses that the regenerated sorbent may be fed into a desulfurization zone in a boiler or to a storage unit, in a manner meeting the limitations of applicants' claims 6 and 7.

Claims 10-12 have not been rejected under either 35USC102 or 35USC103 because U. S. Pat. 5,730,781 does not teach or suggest that the used sorbent is divided into a plurality of fractions, in the manner required in the scope of these claims.

The following references, which are indicative of the state of the art, are made of record:

U. S. Pat. 5,130,282 disclosing a process for treating a nickel-based catalyst, and

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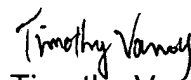
U. S. Pat. 3,778,501 disclosing a method for the regeneration of copper oxide sorbents.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 703-308-2540. The examiner can normally be reached on 8 hr. days.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Timothy Vanoy/tv  
July 15, 2003

  
Timothy Vanoy  
Patent Examiner  
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